KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA
MERLIMAU


# GREEN TECHNOLOGY COMPLIANCE

## AT

## POLITEKNIK MERLIMAU MELAKA

# GREEN TECHNOLOGY COMPLIANCE AT POLITEKNIK MERLIMAU MELAKA

*Ts. Dr. Maria binti Mohammad*

*Civil Engineering Department*

KEMENTERIAN PENDIDIKAN TINGGI
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Your dedication and teamwork have left a lasting impression on me, and I am proud to have worked with such a committed group of young individuals.

Finally, I would like to express my appreciation to Politeknik Merlimau Melaka for the continuous encouragement and support in bringing this publication to life. May this book serve not only as a learning resource but also as a catalyst for further initiatives in green technology and sustainable practices.

— Ts. Dr. Hjh. Maria binti Mohammad
Writer

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# INTRODUCTION

# UNDERSTANDING SDG 17: PARTNERSHIPS FOR THE GOALS

# SUSTAINABLE DEVELOPMENT GOALS 17 (SDG 17)

## WHAT IS SDG 17?

- One of the **17 Sustainable Development Goals** established by the **United Nations in 2015** under the 2030 Agenda.
- **Aim:** Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.
- It recognises that sustainable development can only be achieved through **strong, inclusive, and cooperative** partnerships across countries, sectors, and people.



## TARGETS AND INDICATORS

| Target | What It Means | Key Indicator |
|---|---|---|
| **17.1** Strengthen domestic resource mobilisation | Support countries (esp. developing) in collecting taxes and funding public services | 17.1.1 Total government revenue as % of GDP |
| **17.2** Fulfil ODA commitments | Ensure developed countries meet foreign aid targets | 17.2.1 Net official development assistance (% of GNI) |
| **17.3** Mobilise additional resources | Attract funding through investment, remittances, and other sources | 17.3.1 FDI, remittances, and South–South cooperation |
| **17.4** Ensure debt sustainability | Help countries manage and reduce unsustainable debt burdens | 17.4.1 Debt service as % of exports of goods/services |
| **17.5** Promote investment in LDCs | Encourage policies that attract investment to least developed countries | 17.5.1 Number of countries with investment promotion regimes |
| **17.6–17.8** Technology cooperation & access | Promote global access to science, technology, and the Internet | 17.6.1 Fixed broadband subscriptions per 100 people |
| **17.9** Support capacity-building | Strengthen skills and institutions in developing countries | 17.9.1 USD value of technical and financial support |
| **17.10–17.12** Trade facilitation | Create fair, open trade systems for developing countries | 17.12.1 Average tariffs faced by developing countries |
| **17.16–17.17** Multi-stakeholder partnerships | Strengthen cooperation across governments, civil society, and private sector | 17.17.1 USD committed to joint partnerships |
| **17.18–17.19** Data & monitoring systems | Improve data collection and reporting to track SDG progress | 17.18.1 Proportion of indicators with full disaggregation |

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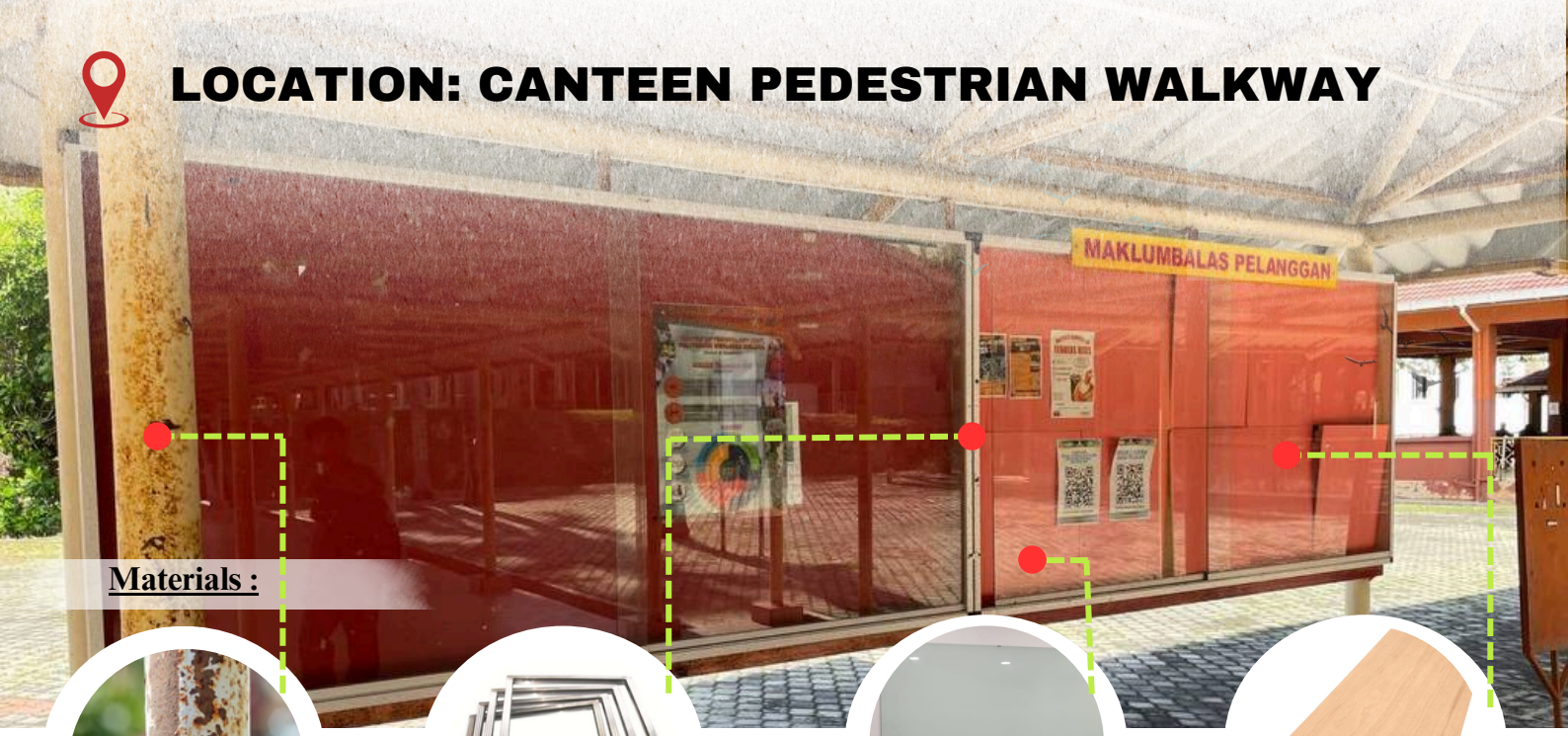
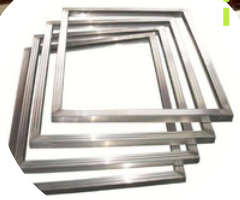
# IMPLEMENTATION OF SDG 17 IN POLITEKNIK MERLIMAU MELAKA: CAMPUS SIGNBOARD SYSTEM

# LOCATION: CANTEEN PEDESTRIAN WALKWAY




**Materials :**

IRON POLE



ALUMINIUM FRAME

GLASS

WOODEN BOARD

**Information boards** are media or tools used to convey various types of information to the general public or specific groups. The information presented may include announcements, schedules, news, notices, or other educational materials.

Based on the Melaka map, the sign is situated between Muar and Jasin.

**MELAKA PLAN**


This sign is located opposite McDonald's and next to PEKAN.

**MERLIMAU PLAN**


This sign is located between Negeri Sembilan and Johor on the map of Malaysia.

**MALAYSIA MAP**


**SITE PLAN**

# INFORMATION: BOARD: THE KEY TO SHARED AWARENESS!

## WHAT IS AN INFORMATION BOARD?

An essential medium for sharing news, announcemeits, and educational content in workplaces, schools, and communities.


## WHY IS IT IMPORTANT?

Boosts community awareness.
Prevents misinformation.
Supports official information·
A creative tool for campaigns
an health, safety, and cleanliness.

## LET'S USE IT ACTIVELY!

Keep information updated regularly.
Ensure the board is clean & neat.
Use creative designs to attract attention.

## CORRECT INFORMATION, RIGHT ACTION!

Together we boost awareness through the information board.

## LINK TO VIDEO

https://youtu.be/p6wTjEIsCwU?si=TmAtZv_K7ktMMj4n

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA MERLIMAU


# IMPLEMENTATION OF SDG 17 IN POLITEKNIK MERLIMAU MELAKA: ARTSPHERE – ART PRESERVATION THROUGH DIGITAL INNOVATION

POLITEKNIK MALAYSIA MERLIMAU
POLYCC TVET For All

# Persada PMM

Portal Digitalisasi Politeknik Merlimau Melaka -
Budayakan Digital

SCAN ME

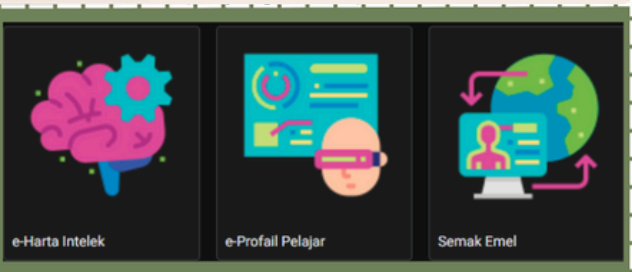
# ABOUT: APPRECIATION, CONTINUOUS ART & STORAGE SPACE ISSUES

## HOW: SOLUTION

**Accessible Experience:** Designing websites that are accessible to all users, regardless of ability, through the aRTSphere solution:

1. e-Daftar Harta Intelek
2. e-Katalog
3. e-Dagang
4. e-Inkubator

All artworks, including mandalas, are preserved through digitalization by capturing original images and showcasing them on various platforms.




## WHAT: UNKOWN FACTS

Artworks often do not gain value over time due to factors such as:

- Subjectivity in appreciation
- Changing art trends
- Influence of the art market
- Limited accessibility
- Lack of societal emphasis on valuing art

## WHY: LACK OF APPRECIATION

**Limited Visibility:** Art may be hidden due to a small audience or the artist feeling disconnected from their work.

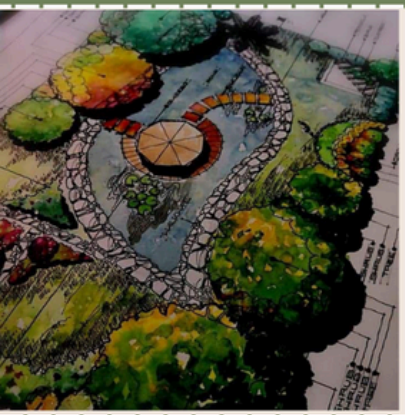
**Undervalued by Society:** Art is often not considered essential and is viewed as a luxury rather than a necessity.

## WHERE: STORAGE ISSUES

Storage problems can lead to:

- Environmental damage
- Mold and insect infestations
- Physical wear and tear
- Dust accumulation and air pollutants

All of which degrade artwork condition and value.



**Intuitive Navigation:**
Users should be able to easily find what they need through a clear menu structure and logical page layout.

**Responsive Design:**
The website should adapt and display well on various devices (desktops, tablets, smartphones).


**High-Quality Content:**
Provide valuable, engaging, and accurate information.

**Contact Information:**
Make it easy for visitors to get in touch with questions or inquiries.

**Search Bar:**
Include a search function to help users quickly find content.

**Security:**
Implement robust measures to protect user data and safeguard the website from threats.

**Clean, Attractive Design:**
A visually appealing website can greatly enhance user engagement.

# NEW POLICIES AND REGULATIONS

## INTRODUCTION

We are excited to announce the rollout of new policies and regulations designed to enhance the security, organization, and compliance of all architect-related projects hosted on our platform. These updates aim to support architects and project stakeholders in managing their work more efficiently while ensuring adherence to industry standards and legal frameworks.

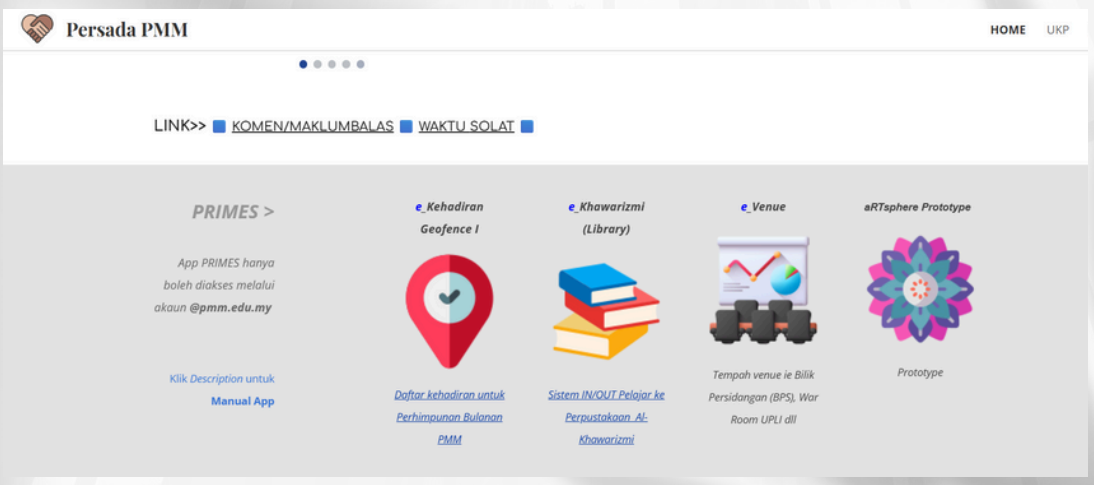
**Secure Project Storage:** Enhanced encryption and backup systems ensure your architectural plans and documents are protected and easily retrievable.

**Version Control Protocols:** New systems that automatically track changes and allow for rollbacks to previous versions of your projects.

**Compliance Alignment:** All project documentation will now be checked against updated regulatory guidelines to ensure compliance with local and international building codes.

**User Access Management:** Refined permissions and user roles provide better control over who can view, edit, or share project files.

These new policies reflect our commitment to supporting the architectural community with cutting-edge, reliable, and secure digital tools.



# NEW POLICIES AND REGULATIONS

## CONCEPT: ARCHITECT PROJECT PRESERVATION & COMPLIANCE PORTAL (APPCP)

**1. Core Policy Pillars**

**Digital Submission & Archival Mandate:**

- All architectural projects over a certain scale (e.g., public buildings, infrastructure, large residential) must be submitted digitally to the APPCP for long-term archiving.

**Licensing & Authentication Regulation:**

- Only licensed architects can submit projects, verified through integration with the national licensing board.

**2. Key Website Features & Functions**

**Project Dashboard:**

- Tracks project status (draft, submitted, approved, archived).

**Version Control & Backup:**

- Immutable version history for legal and historical reference.
- Automated cloud backups and disaster recovery protocols.

# NEW POLICIES AND REGULATIONS

**Digital Signature and Project Approvals:**

Some policies now allow or require the digital submission and signing of architectural plans.

- The website should support secure digital signatures (e.g., eIDAS-compliant).

**Data Privacy and Compliance:**

New data protection regulations (such as GDPR, CCPA, or similar laws in your region) may require:

- Updated privacy policies
- Clear user consent for storing project data.

**IMPACTS**

**Sustainability and Environmental Standards:**

Many new regulations promote green building practices.

- Your platform can include features to assess sustainability (e.g., energy usage, materials used).

**Building Code and Regulation Updates:**

If the website integrates tools or resources related to local or national building codes:

- It must be regularly updated to reflect the latest legal requirements.

# NEW POLICIES AND REGULATIONS

## BENEFITS TO THE COMMUNITY

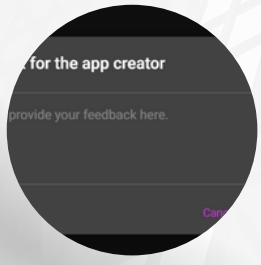
**Efficient Project Review & Compliance:**

- Architects and developers can easily align projects with the latest regulations, reducing delays and miscommunication.
- Automated checks for zoning laws, environmental impact, and heritage considerations can be integrated into the platform.



**Community Feedback & Participation:**

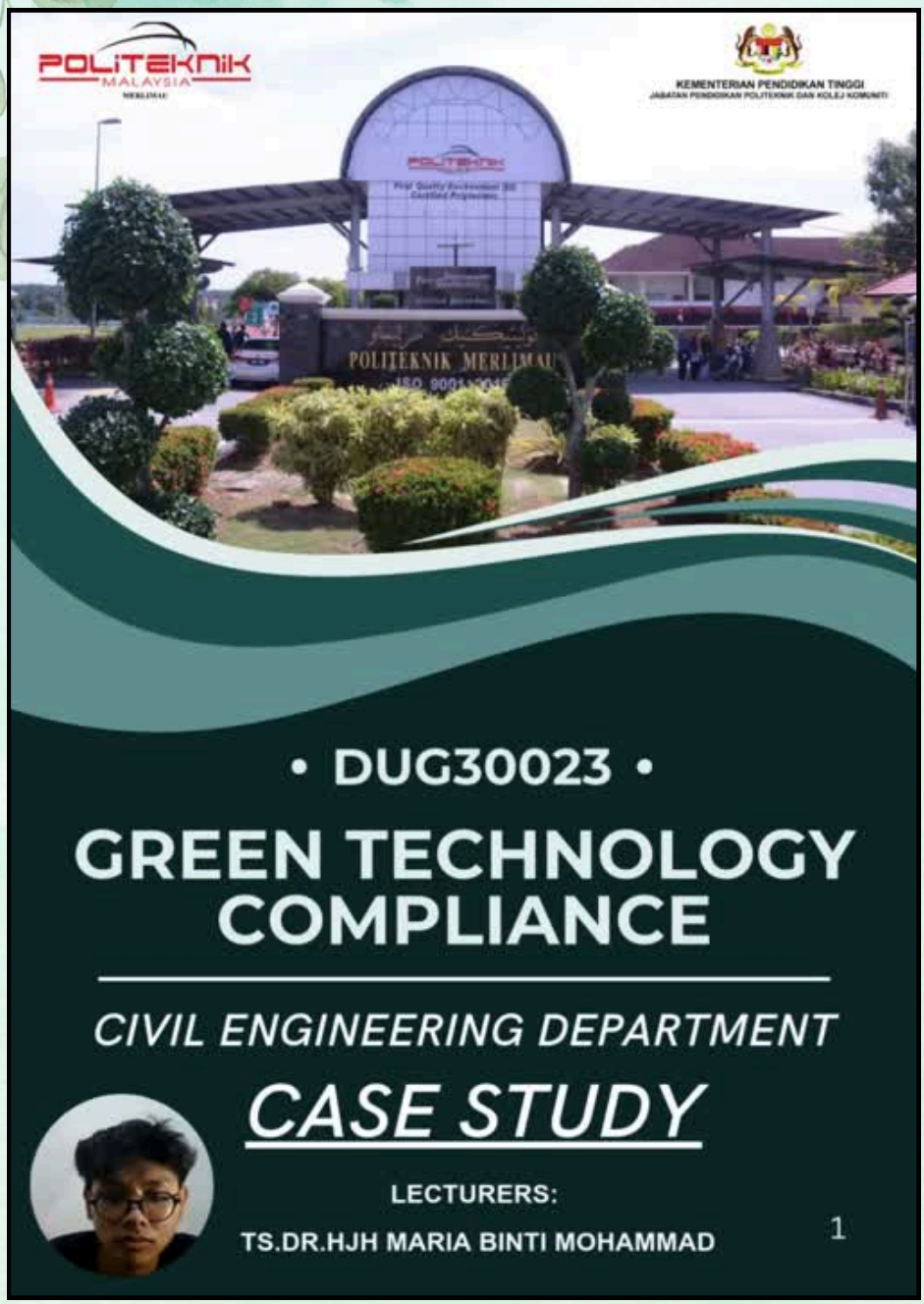
- Integrated tools such as forums, comment sections, or surveys allow community members to share their opinions on proposed projects or regulatory changes.
- This promotes inclusive urban planning and ensures that development reflects community values.





**Educational Resource:**

The platform can serve as an archive of past and current architectural works, inspiring future architects and educating the public on local design and planning history.


## LINK TO VIDEO

https://www.canva.com/design/DAGm1Q1D0lY/Glim_ANuLzDX7YBwqf95DQ/edit?utm_content=DAGm1Q1D0lY&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

POLITEKNIK MALAYSIA MERLIMAU


# IMPLEMENTATION OF 9 RAINWATER HARVESTING SYSTEMS IN 6 KEY AREAS OF POLITEKNIK MERLIMAU MELAKA

# LOCATION 1: IBS MODEL HOUSE

## Materials :



**BRICK**
CONVENIENT AND STRONG. COMMONLY USED FOR EXTERIOR WALL STRUCTURES.



**CONVEYANCE SYSTEM**
DIRECTS RAINWATER FROM THE ROOF TO THE DOWNPIPE.



**CEMENT**
ENHANCES THE DURABILITY AND AESTHETICS OF EXTERIOR WALLS.



**WATER TANK**
STORES RAINWATER FOR NON-POTABLE USES SUCH AS GARDENING AND OUTDOOR CHORES.

## LOCATION /DATA :

- IBS MODEL HOUSE
- TANK: 2 Units
- CAPACITY : 303 & 568 LITERS

## ISSUE :

**1. Need for Proper Drainage**

- A drain should be constructed at the bottom of the water harvesting system pipe.

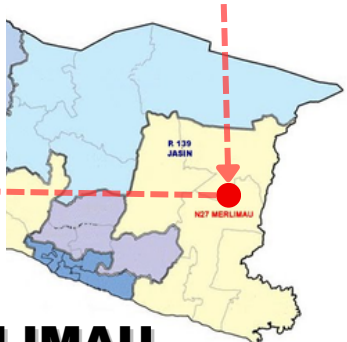
**2. Risk of injury**

- Tiles may be slippery and uneven, increasing the chance of accidents.

## MALAYSIA PLAN


## MELAKA PLAN


## key plan


## MERLIMAU PLAN

## PROPOSED SOLUTION:

**1. Problem Identification:**

- Water shortage due to excessive groundwater extraction.
- Seasonal rainfall wasted as surface runoff.
- Urban flooding caused by poor drainage systems.

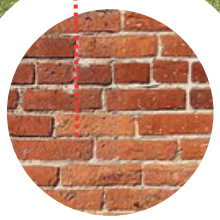
**2. Objectives of the Proposed Solution:**

- To harvest rainwater from rooftops, open areas, and roads.
- To naturally recharge groundwater.

# LOCATION 2: IBS BUILDING

## Materials :

**PLASTIC (POLYETHYLENE / HDPE)**
LIGHTWEIGHT, RUST-RESISTANT, EASY TO MOVE, AND NON-TOXIC.



**BRICK**
USED TO REPAIR DAMAGED SURFACES.

**CEMENT**
APPLIED TO PREPARE THE SURFACE FOR PAINTING.

**WATER TANK**
PAIRED WITH A SHADING SYSTEM TO CREATE A SUITABLE ENVIRONMENT FOR MUSHROOM CULTIVATION.

## LOCATION /DATA :

- IBS BUILDING
- Tank : 1 Unit
- CAPACITY: 303 LITERS

## ISSUES :

**1. Need for Proper Drainage**

- A drain needs to be installed at the bottom of the water harvesting system pipe.

**2. Climate**

- The tank is exposed to rain and heat, which can cause the pH level of the stored dirty water to increase.

## PROPOSED SOLUTION:

**Components of the Proposed Water Harvesting System:**

- Gutters and pipes to channel rainwater from the catchment area to storage or recharge systems.
- Tanks, sumps, or cisterns made of concrete, plastic, or metal.

## MALAYSIA PLAN


## MELAKA PLAN


## KEY PLAN



## MERLIMAU PLAN

# COLLAR JOB RECOGNITION BY RELATED INDUSTRIES

## INTRODUCTION

### Collar Job Recognition by Related Industries

In today’s increasingly complex and diverse job market, the term "collar jobs" is widely used to classify various types of employment based on the nature of the work, required skill level, and industry sector. These classifications include categories such as white collar, blue collar, pink collar, green collar, and others, each representing a distinct field of work.

Each type of collar job is recognized differently by various industries, depending on workforce demands, technological advancements, and economic developments. Understanding these classifications is vital for formulating effective human resource policies, developing relevant skills, and guiding individuals toward suitable career paths across multiple industry sectors.

# COLLAR JOB RECOGNITION BY RELATED INDUSTRIES

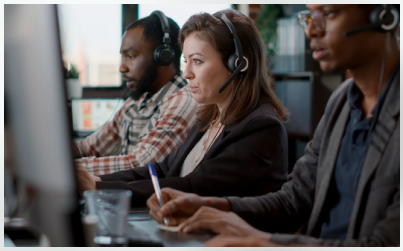
## CONCEPT

“Collar job recognition by related industries” refers to how specific industries classify or identify types of jobs based on the color of the "collar" representing the job category. This classification is typically used to describe the nature of tasks, required skill levels, and the industry sector of a person's work.

**1. White Collar Jobs**
**Related industries:** Banking, corporate, administration, professional services.

**2. Blue Collar Jobs**
**Related industries:** Manufacturing, construction, logistics, automotive.

**3. Pink Collar Jobs**
**Related industries:** Customer service, healthcare, early childhood education.



**4. Green Collar Jobs**
**Related industries:** Renewable energy, environmental management, green engineering.

**5. Gold Collar Jobs**
**Related industries:** High technology, science, medicine, law.

# IMPACTS TO THE COMMUNITY

**Skills Development and Training:**
The industry focuses on providing training that aligns with the dominant types of collar jobs, ensuring that workers develop relevant and practical skills.

**Labor Market Structuring:**
Classifying collar jobs helps identify labor needs by sector. This, in turn, influences hiring practices, wage rates, and promotion opportunities.

**Influence on Social Perception:**
Certain collar jobs (such as white- or gold-collar roles) may be viewed as more prestigious, while others (like blue- or pink-collar jobs) are often undervalued despite their importance. This can lead to unequal appreciation of different types of work.

**Individual Career Planning:**
Recognizing different types of collar jobs helps individuals choose career paths based on their interests, abilities, and industry demands. It also offers insights into job prospects and long-term career stability in specific sectors.

**Government and Education Policy:**
Governments and educational institutions can design curricula, vocational training, and development programs based on the labor needs associated with different collar jobs in both local and global industries.

# BENEFITS TO THE COMMUNITY

The following describes the impact of Collar Job Recognition by Related Industries:

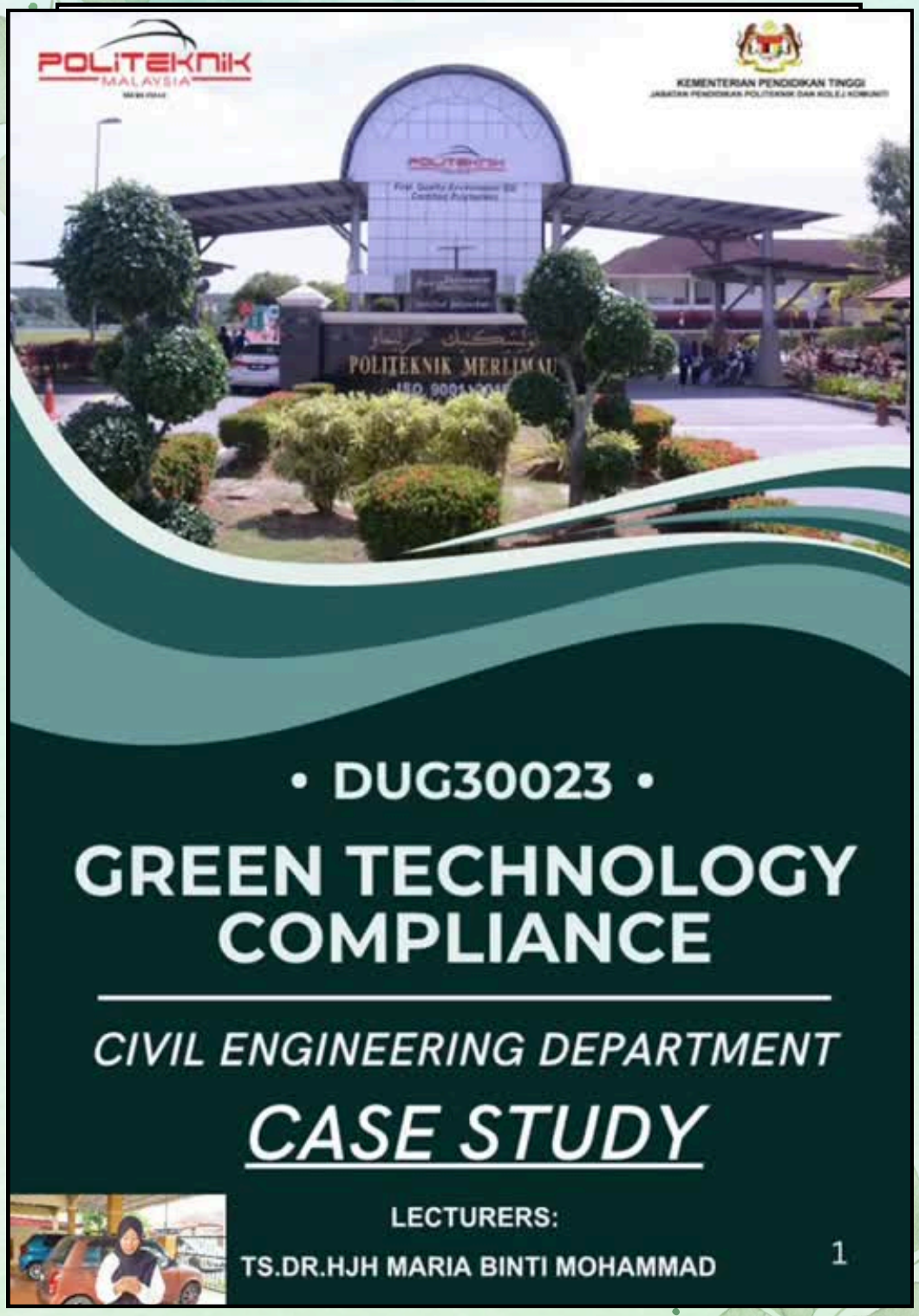
**Skills Development and Training:**
Industries focus on providing training tailored to the dominant types of collar jobs, ensuring that employees gain relevant and applicable skills.

**Labor Market Structuring:**
The classification of collar jobs helps identify labor needs by sector, which in turn influences hiring practices, wage structures, and promotion opportunities.

**Influence on Social Perception:**
Certain collar jobs, such as white- or gold-collar roles, may be seen as more prestigious, while others, like blue- or pink-collar jobs, are often undervalued, despite being essential. This can lead to an imbalance in how different types of work are appreciated.

**Individual Career Planning:**
Recognizing various collar job types helps individuals choose career paths that align with their interests, skills, and industry demands. It also provides insight into job prospects and long-term stability within a specific sector.

**Government and Education Policy:**
Governments and educational institutions can design curricula, vocational training, and development programs that align with the labor demands of different collar jobs in both local and global industries.




## LINK TO VIDEO

https://youtu.be/npuJkLqbSts

# LOCATION 3: JKA LECTURE HALL


## Materials :



**BRICK**

Used to repair damaged surfaces.



**WOOD**

Used for construction purposes.



**SINK**

Anti-fungal paint is applied to water tanks.



**CEMENT**

Prepares the surface for painting.



**WATER TANK**

Paired with a shading system to prevent mold growth and provide a suitable environment for mushrooms.

## LOCATION /DATA :

- JKA LECTURE HALL
- Tank : 2 units
- Capacity: 303 liters each

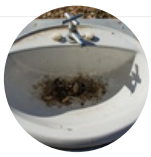
## ISSUE :

1.**Maintenance Needed**

- Requires regular maintenance
- Sink is filled with leaves
- Not suitable for use
- Pipe is clogged with leaves

**2. Water Pollution**

- The water tank channel is full of leaves and mould



## MALAYSIA PLAN


## MELAKA PLAN


## KEY PLAN

## MERLIMAU PLAN

## PROPOSED SOLUTIONS:

1. **Maintenance**

- Build a roof so the tank is shaded and not exposed to falling leaves

**2. Water Pollution**

- Use a covered gutter to avoid leaf buildup
- Install a shading system using anti-fungal materials to prevent mould growth

# LOCATION 4: IN FRONT OF STARENA

**Materials :**



**BRICK :**
Used to repair damaged surfaces



**WATER TANK :**
Paired with a shading system to provide a suitable environment for mushroom cultivation.



**CEMENT :**
Used as a surface for painting.

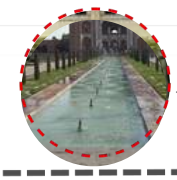
## LOCATION /DATA :

- IN FRONT OF STARENA
- TANK: 1 unit
- CAPACITY: 1135 LITERS EACH

## ISSUES :

**1. Water Quality**

- Rainwater can be contaminated with dust, pollutants, or metal from the roof.



**2. Unsystematic installation of drain pipes**

- Poorly installed pipes can burst and pose safety hazards for people passing underneath.

## MALAYSIA PLAN


## PLAN MELAKA


## KEY PLAN

## MERLIMAU PLAN

## PROPOSED SOLUTIONS:

**1. Install a filter**

- Use a water filter and purification system to improve water quality.

**2. Water Pollution**

- Relocate the tank closer to the wall to avoid potential accidents.

Water harvesting changes the perception of water from an endless utility to a resource that requires care and planning. It encourages people to:

Think long-term instead of solving today's shortage with a water tanker

Take ownership of local water resources such as rooftops, rain, and land

**CONCEPT**

See rainwater as a valuable free asset, not something to be drained away

- People start seeing rain as an opportunity, not a nuisance

- Shift in thinking: ”I must keep water off my property” to “How can I store or recharge that water here?”

## ENVIRONMENTAL, ECONOMIC AND SOCIAL IMPACT

- People understand water systems aren’t costs to avoid but investments in security and self-reliance

1. Communities begin investing together in an infrastructure that pays off in saving and sustainability

- Water becomes a community concern not just personal one

- People work together on planning,installing and maintaning systems fostering collective responsibility

## BENEFITS OF THE CAMPAIGN TO THE COMMUNITY

### Cost Savings

- Significantly reduces household water bills.
- Installation costs can be considered a long-term investment.

### Infrastructure Load Reduction

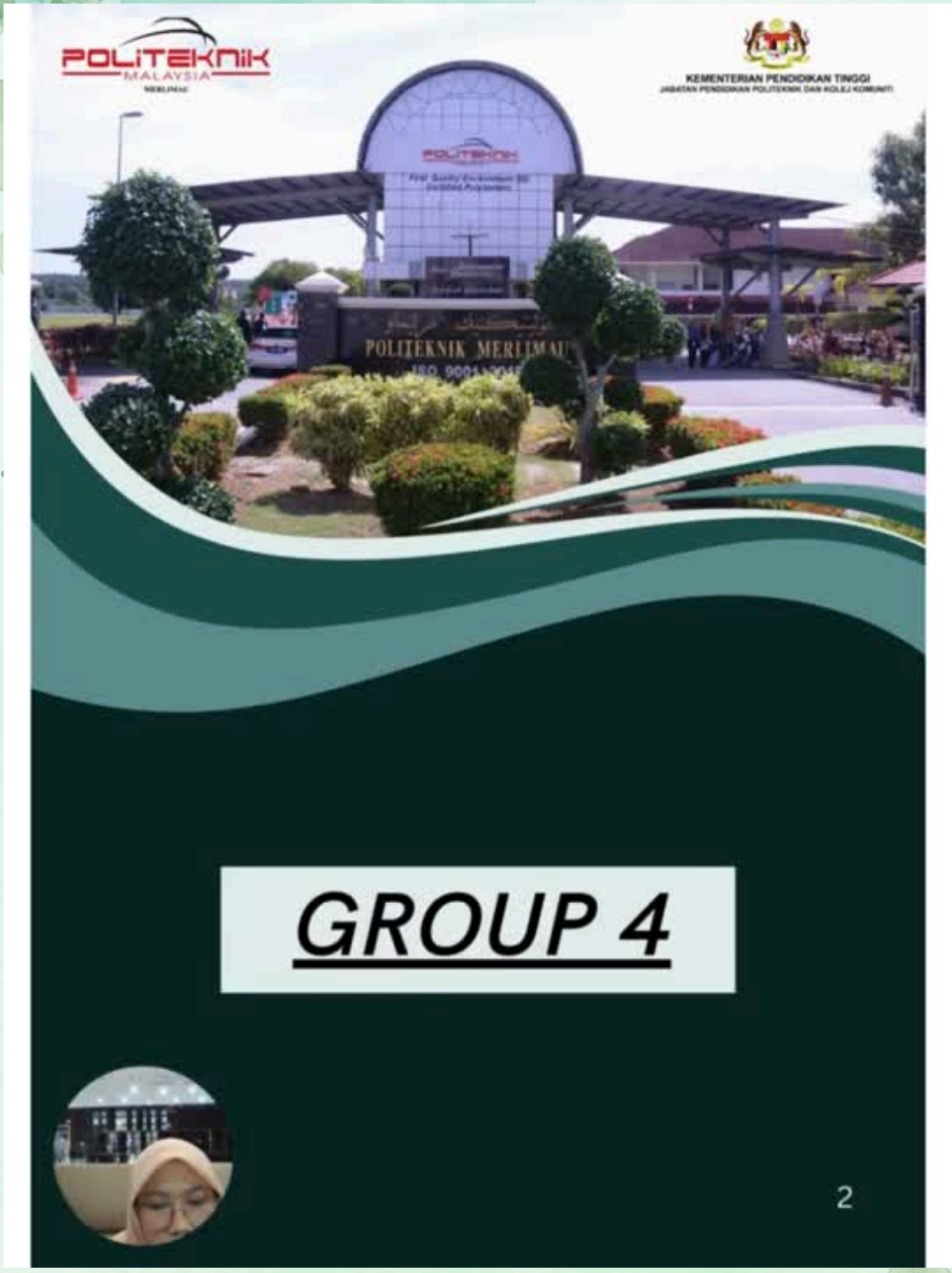
- Reduce pressure on public water supply systems, especially during the dry season.
- Lower the risk of flash floods in urban areas by minimizing rainwater runoff.

### Environmental Conservation

- Support the principle of recycling natural resources.
- Reduce the use of treated water for non-critical tasks.

### Education and Awareness

- Educate children and the younger generation about the importance of sustainability.
- Foster a green culture within the local community.

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https://www.canva.com/design/DAGm4HAQ-w8/InkzKaDI60QXwA9ScX7y4w/watch?utm_content=DAGm4HAQ-w8&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=h34de5f7ed4

# LOCATION 5: RUMAH CENDAWAN PMM

## Materials :



**Plaster gypsum :**
Used to repair damaged surfaces



**Greater feet support :**
Facilitates drainage and allows for inspection of tank water conditions.




**Anti-fungal paint :**
Suitable for water tanks



**Mural :**
A designated surface for decorative painting.



**Mushroom plastic blackout greenhouse :**
Paired with a shading system to create a suitable environment for mushroom cultivation

## LOCATION /DATA :

- RUMAH CENDAWAN
- TANK: 2 units
- CAPACITY : 1,900 LITER EACH

## ISSUE :

**1. Cracks in the Tank:**
- Caused by excessive sun exposure (UV)
- Long tank lifespan
- High water pressure

**2. Water Pollution**
- Loose or leaking tank lids can allow dust and insects in, contaminating the water and making it unsafe to use.

## PROPOSED SOLUTION:

**1. Cracks in the Tank**
- Use special epoxy waterproof sealant for temporary repair.
- If the damage is severe, replace the tank with a new one.

**2. Water Pollution**
- Install a protective net or grill around the tank.
- Use a locked tank lid.
- Avoid placing heavy objects or opening the lid unnecessarily.

## MALAYSIA PLAN


## MELAKA PLAN


## KEY PLAN


## MERLIMAU PLAN

# LOCATION 6: TASIK PMM

## INTRODUCTION

- Located at Tasik Politeknik Merlimau Melaka.
- Water harvesting is the process of collecting and storing rainwater for later use. It is a simple and natural way to save water, especially during the rainy season. This method helps reduce water shortages, saves groundwater, and supports the environment.

**Tank : 1 unit**

**Capacity: 303 Liters**

## MALAYSIA PLAN


## MELAKA PLAN


## KEY PLAN

## MERLIMAU PLAN

## ISSUES :

1.Contamination Risk

Mosquito breeding occurs in stagnant or uncovered tanks.

2. Limited Capacity

If not sized correctly, tanks may run out quickly during droughts or heavy use.

## PROPOSED SOLUTIONS:

**1. Contamination Risk**

- Clean roofs and gutters regularly.
- Maintain clean catchment areas to prevent leaves, bird droppings, and debris from entering the tank.

**2. Limited Capacity**

- Use larger or multiple storage tanks.
- Connect multiple tanks to improve storage capacity during heavy rains.

## MATERIALS :

**BITUMEN :**
Used for roofing or drainage due to its excellent waterproofing and sealing properties.

**PVC:**
Widely used for pipelines due to its resistance to erosion, lightweight design, and ease of installation.

**FIBERGLASS:**
Durable, strong, and resistant to damage from moisture or water.

Water harvesting shifts the perception of water from an endless utility to a valuable resource that requires care and planning. It encourages people to:

## CONCEPT: RAINWATER HARVESTING SYSTEM (SPAH)

A Rainwater Harvesting System (SPAH) is a method of collecting, filtering, and storing rainwater for non-potable uses such as cleaning, gardening, toilet flushing, and even emergency use. A typical system consists of:

- **A catchment area** (e.g., rooftop)
- **Gutters and downpipes** to channel rainwater
- **A storage tank or reservoir** for holding collected water
- **Filtration and distribution components** to clean and direct the water for use

In terms of funding, SPAH can be implemented at the individual, community, or institutional level through various sources, including:

- Government grants and subsidies
- Corporate Social Responsibility (CSR) contributions
- Climate-related international funding
- Community cooperatives or local fundraising
- Green loans or micro- financing


## LINK TO VIDEO

https://www.canva.com/design/DAGm1VKe4aU/fUBR_V1nsWB0bDuGO5gHQw/watch?utm_content=DAGm1VKe4aU&utm_campaign=designshare&utm_medium=link2&utm_source=uniquelinks&utlId=h688e91911f